

## PNP SILICON SWITCHING TRANSISTOR

Qualified per MIL-PRF-19500/357

### DEVICES

<b>2N3634</b>	<b>2N3635</b>	<b>2N3636</b>	<b>2N3637</b>
<b>2N3634L</b>	<b>2N3635L</b>	<b>2N3636L</b>	<b>2N3637L</b>
<b>2N3634UB</b>	<b>2N3635UB</b>	<b>2N3636UB</b>	<b>2N3637UB</b>

### LEVELS

**JAN**  
**JANTX**  
**JANTXV**  
**JANS**

### ABSOLUTE MAXIMUM RATINGS ( $T_C = +25^\circ\text{C}$ unless otherwise noted)

Parameters / Test Conditions	Symbol	2N3634*	2N3636*	Unit
		2N3635*	2N3637*	
Collector-Emitter Voltage	$V_{CEO}$	140	175	Vdc
Collector-Base Voltage	$V_{CBO}$	140	175	Vdc
Emitter-Base Voltage	$V_{EBO}$	5.0	5.0	Vdc
Collector Current	$I_C$	1.0	1.0	Adc
Total Power Dissipation	@ $T_A = +25^\circ\text{C}$	1.0		W
	@ $T_C = +25^\circ\text{C}$	5.0		W
	UB: @ $T_C = +25^\circ\text{C}$	1.5		W
Operating & Storage Junction Temperature Range	$T_J, T_{stg}$	-65 to +200		$^\circ\text{C}$

\* Electrical characteristics for "L" suffix devices are identical to the "non L" corresponding devices.

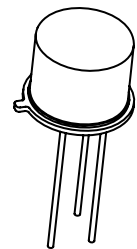
\*\* Consult 19500/357 for De-Rating curves.

### ELECTRICAL CHARACTERISTICS ( $T_A = +25^\circ\text{C}$ , unless otherwise noted)

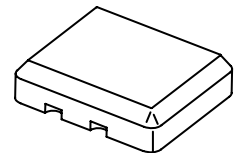
Parameters / Test Conditions	Symbol	Min.	Max.	Unit
<b>OFF CHARACTERISTICS</b>				
Collector-Emitter Breakdown Voltage $I_C = 10\text{mAdc}$	$V_{(BR)CEO}$	140		Vdc
2N3634, 2N3635 2N3636, 2N3637		175		
Collector-Base Cutoff Current $V_{CB} = 100\text{Vdc}$	$I_{CBO}$		100	$\eta\text{Adc}$
$V_{CB} = 140\text{Vdc}$		2N3634, 2N3635	10	$\mu\text{Adc}$
$V_{CB} = 175\text{Vdc}$		2N3636, 2N3637	10	$\mu\text{Adc}$
Emitter-Base Cutoff Current $V_{EB} = 3.0\text{Vdc}$	$I_{EBO}$		50	$\eta\text{Adc}$
$V_{EB} = 5.0\text{Vdc}$		10	$\mu\text{Adc}$	
Collector-Emitter cutoff Current $V_{CE} = 100\text{Vdc}$	$I_{CEO}$		10	$\mu\text{Adc}$



**TO-5\***  
 2N3634L, 2N3635L  
 2N3636L, 2N3637L



**TO-39\* (TO-205AD)**  
 2N3634, 2N3635  
 2N3636, 2N3637



**3 PIN**  
 2N3634UB, 2N3635UB  
 2N3636UB, 2N3637UB

## ELECTRICAL CHARACTERISTICS ( $T_A = +25^\circ\text{C}$ , unless otherwise noted)

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
<b>ON CHARACTERISTICS <sup>(1)</sup></b>				
Forward-Current Transfer Ratio $I_C = 0.1\text{mA dc}, V_{CE} = 10\text{V dc}$ $I_C = 1.0\text{mA dc}, V_{CE} = 10\text{V dc}$ $I_C = 10\text{mA dc}, V_{CE} = 10\text{V dc}$ $I_C = 50\text{mA dc}, V_{CE} = 10\text{V dc}$ $I_C = 150\text{mA dc}, V_{CE} = 10\text{V dc}$  $I_C = 0.1\text{mA dc}, V_{CE} = 10\text{V dc}$ $I_C = 1.0\text{mA dc}, V_{CE} = 10\text{V dc}$ $I_C = 10\text{mA dc}, V_{CE} = 10\text{V dc}$ $I_C = 50\text{mA dc}, V_{CE} = 10\text{V dc}$ $I_C = 150\text{mA dc}, V_{CE} = 10\text{V dc}$	2N3634, 2N3636       2N3635, 2N3637	$h_{FE}$	25 45 50 50 30  55 90 100 100 60	150   300
Collector-Emitter Saturation Voltage $I_C = 10\text{mA dc}, I_B = 1.0\text{mA dc}$ $I_C = 50\text{mA dc}, I_B = 5.0\text{mA dc}$	$V_{CE(sat)}$		0.3 0.6	Vdc
Base-Emitter Saturation Voltage $I_C = 10\text{mA dc}, I_B = 1.0\text{mA dc}$ $I_C = 50\text{mA dc}, I_B = 5.0\text{mA dc}$	$V_{BE(sat)}$	0.65	0.8 0.9	Vdc

## DYNAMIC CHARACTERISTICS

Parameters / Test Conditions	Symbol	Min.	Max.	Unit
Forward Current Transfer Ratio $I_C = 30\text{mA dc}, V_{CE} = 30\text{V dc}, f = 100\text{MHz}$	$ h_{fe} $	1.5 2.0	8.0 8.5	
Forward Current Transfer Ratio $I_C = 10\text{mA dc}, V_{CE} = 10\text{V dc}, f = 1.0\text{kHz}$	$h_{fe}$	40 80	160 320	
Small-Signal Short-Circuit Input Impedance $I_C = 10\text{mA dc}, V_{CE} = 10\text{V dc}, f = 1.0\text{kHz}$	$h_{ie}$	100 200	600 1200	$\Omega$
Small-Signal Open-Circuit Input Impedance $I_C = 10\text{mA dc}, V_{CE} = 10\text{V dc}, f = 1.0\text{kHz}$	$h_{oe}$		200	$\mu\text{s}$
Output Capacitance $V_{CB} = 20\text{V dc}, I_E = 0, 100\text{ kHz} \leq f \leq 1.0\text{MHz}$	$C_{obo}$		10	pF
Input Capacitance $V_{EB} = 1.0\text{V dc}, I_C = 0, 100\text{ kHz} \leq f \leq 1.0\text{MHz}$	$C_{ibo}$		75	pF
Noise Figure $V_{CE} = 10\text{V dc}, I_C = 0.5\text{mA dc}, R_g = 1.0\text{k}\Omega$	NF	$f = 100\text{Hz}$ $f = 1.0\text{kHz}$ $f = 10\text{kHz}$	5.0 3.0 3.0	dB

(1) Pulse Test: Pulse Width = 300 $\mu\text{s}$ , Duty Cycle  $\leq 2.0\%$



6 Lake Street, Lawrence, MA 01841  
1-800-446-1158 / (978) 620-2600 / Fax: (978) 689-0803  
Website: <http://www.microsemi.com>

# TECHNICAL DATA SHEET

Gort Road Business Park, Ennis, Co. Clare, Ireland  
Tel: +353 (0) 65 6840044 Fax: +353 (0) 65 6822298

## SAFE OPERATING AREA

### DC Tests

$T_C = 25^\circ\text{C}$ , 1 Cycle,  $t = 1.0\text{s}$

#### Test 1

$V_{CE} = 100\text{Vdc}$ ,  $I_C = 30\text{mA}$

2N3634, 2N3635

$V_{CE} = 130\text{Vdc}$ ,  $I_C = 20\text{mA}$

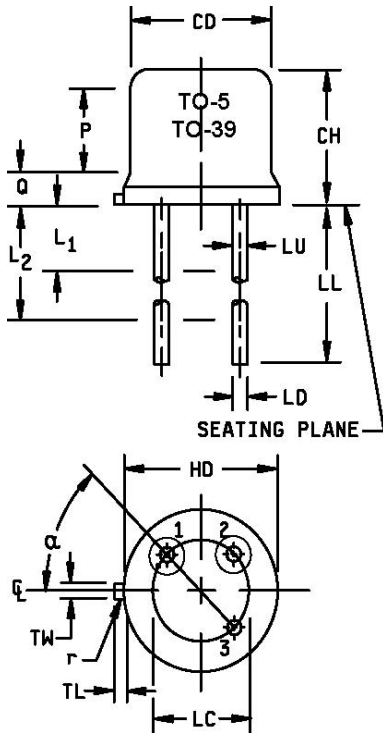
2N3636, 2N3637

#### Test 2

$V_{CE} = 50\text{Vdc}$ ,  $I_C = 95\text{mA}$

#### Test 3

$V_{CE} = 5.0\text{Vdc}$ ,  $I_C = 1.0\text{A}$

**PACKAGE DIMENSIONS**


Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
CD	.305	.335	7.75	8.51	
CH	.240	.260	6.10	6.60	
HD	.335	.370	8.51	9.40	
LC	.200 TYP		5.08 TYP		7
LD	.016	.021	0.41	0.53	6
LL	See notes 7, 9, and 10				
LU	.016	.019	0.41	0.48	7
L <sub>1</sub>		.050		1.27	7
L <sub>2</sub>	.250		6.35		7
P	.100		2.54		5
Q		.050		1.27	
r		.010		0.254	8
TL	.029	.045	0.74	1.14	4
TW	.028	.034	0.71	0.86	3
α	45° TP		45° TP		6
Term 1	Emitter				
Term 2	Base				
Term 3	Collector				

**NOTES:**

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Beyond r maximum, TW must be held to a minimum length of .021 inch (0.53 mm).
4. TL measured from maximum HD.
5. CD shall not vary more than ±.010 inch (0.25 mm) in zone P. This zone is controlled for automatic handling.
6. Leads at gauge plane .054 - .055 inch (1.37 - 1.40 mm) below seating plane shall be within .007 inch (0.18 mm) radius of true position (TP) at a maximum material condition (MMC) relative to the tab at MMC. The device may be measured by direct methods or by gauge and gauging procedure.
7. LU applies between L<sub>1</sub> and L<sub>2</sub>. LD applies between L<sub>2</sub> and L minimum. Diameter is uncontrolled in L<sub>1</sub> and beyond LL minimum.
8. r (radius) applies to both inside corners of tab.
9. For transistor types 2N3634 through 2N3637, LL is .500 inch (12.70 mm) minimum, and .750 inch (19.05 mm) maximum (TO-39).
10. For transistor types 2N3634L through 2N3637L, LL is 1.500 inches (38.10 mm) minimum, and 1.750 inches (44.45 mm) maximum (TO-5).
11. In accordance with ASME Y14.5M, diameters are equivalent to φx symbology.

**FIGURE 1: Physical dimensions (TO-5 and TO-39)**



**NOTES:**

1. Dimensions are in inches.
2. Millimeters are given for general information only.
3. Hatched areas on package denote metallized areas.
4. Pad 1 = Base, Pad 2 = Emitter, Pad 3 = Collector, Pad 4 = Shielding connected to the lid.
5. In accordance with ASME Y14.5M, diameters are equivalent to  $\phi x$  symbology

Ltr	Dimensions				Notes
	Inches		Millimeters		
	Min	Max	Min	Max	
BH	.046	.056	1.17	1.42	
BL	.115	.128	2.92	3.25	
BW	.085	.108	2.16	2.74	
CL		.128		3.25	
CW		.108		2.74	
LL <sub>1</sub>	.022	.038	0.56	0.96	
LL <sub>2</sub>	.017	.035	0.43	0.89	
LS <sub>1</sub>	.036	.040	0.91	1.02	
LS <sub>2</sub>	.071	.079	1.81	2.01	
LW	.016	.024	0.41	0.61	
r		.008		.203	
r <sub>1</sub>		.012		.305	
r <sub>2</sub>		.022		.559	

**FIGURE 2:** Physical dimensions, surface mount 2N3634UB through 2N3637UB (UB version).



Компания «ЭлектроПласт» предлагает заключение долгосрочных отношений при поставках импортных электронных компонентов на взаимовыгодных условиях!

Наши преимущества:

- Оперативные поставки широкого спектра электронных компонентов отечественного и импортного производства напрямую от производителей и с крупнейших мировых складов;
- Поставка более 17-ти миллионов наименований электронных компонентов;
- Поставка сложных, дефицитных, либо снятых с производства позиций;
- Оперативные сроки поставки под заказ (от 5 рабочих дней);
- Экспресс доставка в любую точку России;
- Техническая поддержка проекта, помощь в подборе аналогов, поставка прототипов;
- Система менеджмента качества сертифицирована по Международному стандарту ISO 9001;
- Лицензия ФСБ на осуществление работ с использованием сведений, составляющих государственную тайну;
- Поставка специализированных компонентов (Xilinx, Altera, Analog Devices, Intersil, Interpoint, Microsemi, Aeroflex, Peregrine, Syfer, Eurofarad, Texas Instrument, Miteq, Cobham, E2V, MA-COM, Hittite, Mini-Circuits, General Dynamics и др.);

Помимо этого, одним из направлений компании «ЭлектроПласт» является направление «Источники питания». Мы предлагаем Вам помощь Конструкторского отдела:

- Подбор оптимального решения, техническое обоснование при выборе компонента;
- Подбор аналогов;
- Консультации по применению компонента;
- Поставка образцов и прототипов;
- Техническая поддержка проекта;
- Защита от снятия компонента с производства.



#### Как с нами связаться

**Телефон:** 8 (812) 309 58 32 (многоканальный)

**Факс:** 8 (812) 320-02-42

**Электронная почта:** [org@eplast1.ru](mailto:org@eplast1.ru)

**Адрес:** 198099, г. Санкт-Петербург, ул. Калинина, дом 2, корпус 4, литера А.